

## - CLAIMS -

1/ A composite compound of mineral or organic fillers or pigments, characterised in that it contains:

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a) at least two mineral or organic fillers or pigments, at least one of which has a surface with at least one hydrophilic site and the other at least has at least one organophilic site

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b) at least one binding agent

and in that the mineral or organic fillers or pigments are co-structured or co-adsorbed.

2/ A composite compound of mineral or organic fillers or pigments as claimed in claim 1, characterised in that it is an aqueous compound.

3/ A composite compound of mineral or organic fillers or pigments as claimed in claim 1, characterised in that it is a non-aqueous compound.

4/ A composite compound of mineral or organic fillers or pigments as claimed in claim 1, characterised in that it is a dry compound.

5/ A composite compound as claimed in one of claims 1 to 4, characterised in that the binding agent is an organic compound.

6/ A composite compound as claimed in any one of claims 1 to 5, characterised in that the binding agent is supported by a gas.

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7/ A composite compound as claimed in any one of claims 1 to 6, characterised in that the binding agent is selected from among the acrylic or vinyl polymers and/or copolymers or polycondensates or the polyaddition products such as polymers and/or copolymers, in their totally acid state or partially neutralised or totally neutralised, of at least one of the monomers such as acrylic and/or methacrylic, itaconic, crotonic, fumaric acid, maleic anhydride or isocrotonic, aconitic, mesaconic, sinapic, undecylenic, angelic acid and/or their respective esters, acrylamido methyl propane sulphonic acid, acrolein, acrylamide and/or methacrylamide, methacrylamido propyl trimethyl ammonium chloride or sulphate, methacrylate of trimethyl ammonium ethyl chloride or sulphate, as well as their acrylate and acrylamide counterparts, quaternised or not, and/or dimethyldiallyl chloride, vinylpyrrolidone or a binding agent chosen from among the linear or branched fatty acids or the linear or branched fatty alcohols or the linear or branched or cyclic fatty amines, saturated or unsaturated, or a binding agent chosen from among the quaternary salts, preferably with linear or branched fatty chains of vegetable origin or not.

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8/ A composite compound as claimed in any one of claims 1 to 6, characterised in that the binding agent is selected from among the acrylic or vinyl polymers and/or copolymers. in their totally acid state or partially neutralised or totally neutralised, obtained by polymerisation, in the acid state in the presence of one at least of the mineral or organic particles of the composite compound and optionally in the presence of the binding agent as claimed in claim 7, of at least one of the monomers such as acrylic and/or methacrylic,

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itaconic, crotonic, fumaric acid, maleic anhydride or isocrotonic, aconitic, mesaconic, sinapic, undecylenic, angelic acid and/or their respective esters, acrylamido methyl propane sulphonic acid, acrolein, acrylamide and/or methacrylamide, methacrylamido propyl trimethyl ammonium chloride or sulphate, methacrylate of trimethyl ammonium ethyl chloride or sulphate, as well as their acrylate and acrylamide counterparts, quaternised or not, and/or dimethyldiallyl chloride, vinylpyrrolidone or such as the unsaturated linear or branched fatty acids or the linear or branched fatty alcohols or the unsaturated linear or branched or cyclic fatty amines, or the quaternary salts, preferably with unsaturated linear or branched fatty chains of vegetable origin or not.

9/ A composite compound as claimed in any one of claims 1 to 8, characterised in that the mineral or organic filler or fillers and pigment or pigments having a surface with at least one hydrophilic site are chosen from among the natural calcium carbonates such as chalk, calcite, marble or any other form of natural calcium carbonate, obtained in particular from recycling processes, or from among precipitated calcium carbonate, the dolomites, crystalline or amorphous aluminium hydroxides, synthetic or natural precipitated silicates, calcium sulphate, titanium dioxides, satin white, the wollastonites, huntite, calcined clays in particular from recycling processes or starch or alternatively selected from among organophilic organic or mineral particles that have been subjected to physical or chemical processing so that they have at least one hydrophilic site.

10/ A composite compound as claimed in any one of claims 1 to 8, characterised in that the mineral or organic filler or fillers and pigment or pigments having a surface with at least one organophilic site  
5 are selected from among the talcs, micas, clays, whether calcined or not, zinc oxide, transparent iron pigments, colouring pigments, synthetic pigments with a polystyrene base, urea-formol resins, carbon black or the fibres and flour of cellulose or selected from  
10 among hydrophilic mineral or organic particles that have been subjected to physical or chemical processing so that they have at least one organophilic site.

11/ A composite compound as claimed in any one of  
15 claims 1 to 10, characterised in that it contains 0.1% to 99.9% by dry weight and preferably 25% to 95% by dry weight, relative to the total dry weight of the fillers or pigments, of mineral or organic fillers or pigments having a surface with at least one hydrophilic site and  
20 99.9% to 0.1% by dry weight and preferably between 75% and 5% by dry weight, relative to the total dry weight of the fillers or pigments, of mineral or organic fillers or pigments having a surface with at least one organophilic site.

12/ A composite compound as claimed in any one of claims 1 to 11, characterised in that it contains 0.01% to 10% and preferably 0.1% to 1.5% dry weight of the binding agent relative to the total dry weight of the  
30 fillers or pigments.

13/ A composite compound as claimed in any one of claims 1 to 12, characterised in that it is macroscopically homogeneous.

14/ A composite compound as claimed in any one of claims 1 to 12, characterised in that its yield stress as determined by measuring on a Stress Tech<sup>®</sup> machine for measuring viscoelasticity is higher than and preferably at least four times higher than that of the standard corresponding standard mixture of fillers or pigments.

15/ Use of the composite compounds as claimed in any one of claims 1 to 14 for the manufacture of aqueous suspensions of organic or mineral pigments or fillers, paper coating colors and/or for the manufacture of paper, in the paper filling and/or for any other paper surface-treatment.

16/ Use of the composite compounds as claimed in any one of claims 1 to 14 in the field of paints.

17/ Use of the composite compounds as claimed in any one of claims 1 to 14 in the field of plastics.

18/ An aqueous suspension of mineral or organic fillers or pigments, characterised in that it contains a composite compound as claimed in any one of claims 1 to 14.

19/ An aqueous suspensions of mineral or organic fillers or pigments as claimed in claim 18, characterised in that it is macroscopically homogeneous.

20/ An aqueous suspension of mineral or organic fillers or pigments as claimed in claim 18, characterised in that its yield stress as determined by a Stress Tech<sup>®</sup>

machine for measuring viscoelasticity is higher than and preferably at least four times higher than that of the corresponding standard mixture of fillers or pigments.

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21/ A coating color characterised in that it contains a composite compound as claimed in any one of claims 1 to 14.

10 22/ A paper coating color as claimed in claim 21 characterised in that it is macroscopically homogeneous.

23/ A paper coating color as claimed in claim 21,  
15 characterised in that its yield stress as determined by a Stress Tech<sup>®</sup> machine for measuring viscoelasticity is higher than and preferably at least four times higher than the corresponding standard mixture of fillers or pigments.

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24/ A paper coating color as claimed in any one of claims 21 to 23, characterised in that it has a higher light scattering coefficient S than that of a coating color containing the standard suspensions of the  
25 corresponding mixtures.

25/ A paper coating color as claimed in any one of claims 21 to 23, characterised in that it has a higher whiteness, determined in accordance with the TAPPI T452  
30 ISO 2470 standard, than that of a coating color containing standard suspensions of the corresponding mixtures.

26/ A paper coating color as claimed in any one of

claims 21 to 23, characterised in that it has a higher brightness, TAPPI 75° according to Lehmann, than that of a coating color containing the standard suspensions of corresponding mixtures.

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27/ A paper coating color as claimed in any one of claims 21 to 23, characterised in that its curve, determined in accordance with the ISIT printability test and representative of the tack force as a function of time, has smaller rising and falling gradients than coating colors containing the standard suspensions of the corresponding mixtures and a higher maximum value in terms of tack force.

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28/ A paper coating color as claimed in any one of claims 21 to 23, characterised in that it has a higher print density than that of a coating color containing the standard suspensions of the corresponding mixtures.

29/ A paper surface-treatment compound as well as wood or metal or plastic or cement surface treatment compounds and/or aqueous paint or non-aqueous compositions characterised in that it contains a composite compound as claimed in any one of claims 1 to 14.

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30/ A paper surface-treatment compound as well as wood or metal or plastic or cement surface treatment compounds and/or aqueous paint or non-aqueous compositions as claimed in claim 29, characterised in that it is macroscopically homogeneous.

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31/ A paper surface-treatment compound as claimed in claim 29, characterised in that its yield stress as determined by the Stress Tech® machine for measuring

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viscoelasticity is higher and preferably at least four times higher than that of the standard corresponding mixture of fillers or pigments.

- 5 32/ Aqueous or non-aqueous paint composition as claimed in claim 29, characterised in that it has a higher light scattering coefficient S than that of a paint composition containing the standard suspensions of the corresponding mixtures.

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- 33/ A paper surface-treatment compound as claimed in any one of claims 29 to 31, characterised in that its curve, determined in accordance with the ISIT printability test and representative of the tack force  
15 as a function of time, has smaller rising and falling gradients than surface-treatment compounds containing the standard suspensions of the corresponding mixtures and a higher maximum value in terms of tack force.

- 20 34/ An uncoated filling composition characterised in that it contains a composite compound as claimed in any one of claims 1 to 14.

- 25 35/ A sheet of base paper to be coated, characterised in that it contains the uncoated filling composition as claimed in claim 34.

- 30 36/ A sheet of paper as claimed in claim 35, characterised in that it has a higher opacity determined in accordance with the DIN 53146 standard than that of a sheet of paper containing the standard suspensions of corresponding mixtures.

- 35 37/ A sheet of paper as claimed in claim 35, characterised in that it has a higher whiteness



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